Industrial Standardization

Threads per Inch	Lengths of Engagement From	Lengths of Engagement To and Including	Pitch Diameter Tolerances for Diameters Of: ¼	½	¾	1¼	2	3	4	6	8	11	15	20
40	⅛	¼	0.0033	0.0036	0.0038	0.0041	0.0045							
	¼	⅜	0.0037	0.0040	0.0042	0.0045	0.0049							
	⅜	½	0.0040	0.0043	0.0045	0.0048								
36	⅛	¼	0.0034	0.0037	0.0040	0.0042	0.0046							
	¼	⅜	0.0038	0.0041	0.0043	0.0046	0.0050							
	⅜	½	0.0041	0.0044	0.0046	0.0049	0.0053							
	½	¾	0.0045	0.0048	0.0050	0.0053								
32	⅛	¼	0.0038	0.0041	0.0044	0.0047	0.0050	0.0054						
	¼	⅜	0.0041	0.0044	0.0047	0.0050	0.0054	0.0057						
	⅜	½	0.0045	0.0048	0.0051	0.0054	0.0057							
	½	¾		0.0053	0.0055	0.0058								
28	⅛	¼	0.0038	0.0041	0.0044	0.0047	0.0050	0.0054						
	¼	⅜	0.0041	0.0044	0.0047	0.0050	0.0054	0.0057						
	⅜	½	0.0045	0.0048	0.0051	0.0054	0.0057							
	½	¾		0.0053	0.0055	0.0058								
26	¼	⅜	0.0042	0.0045	0.0048	0.0051	0.0055							
	⅜	½	0.0045	0.0048	0.0051	0.0055	0.0058							
	½	¾	0.0049	0.0052	0.0055	0.0058	0.0062							
	¾	1	0.0054	0.0056	0.0059	0.0063	0.0066							
24	¼	⅜	0.0042	0.0045	0.0048	0.0051	0.0055							
	⅜	½	0.0045	0.0048	0.0051	0.0055	0.0058							
	½	¾	0.0049	0.0052	0.0055	0.0058	0.0062							
	¾	1	0.0054	0.0056	0.0059	0.0063	0.0066							
20	¼	⅜	0.0044	0.0046	0.0049	0.0053	0.0056	0.0060	0.0063					
	⅜	½	0.0047	0.0049	0.0052	0.0056	0.0059	0.0063	0.0067					
	½	¾	0.0051	0.0053	0.0056	0.0060	0.0063	0.0067	0.0070					
	¾	1	0.0055	0.0058	0.0061	0.0064	0.0068	0.0071						
18	¼	⅜	0.0051	0.0054	0.0058	0.0061	0.0065	0.0068						
	⅜	½	0.0055	0.0058	0.0062	0.0065	0.0069	0.0072						
	½	¾	0.0060	0.0062	0.0066	0.0070	0.0073	0.0077						
	¾	1	0.0065	0.0068	0.0071	0.0075	0.0078	0.0082						
	1	1½		0.0074	0.0078	0.0081	0.0084	0.0088						
16	¼	⅜	0.0051	0.0054	0.0058	0.0061	0.0065	0.0068						
	⅜	½	0.0055	0.0058	0.0062	0.0065	0.0069	0.0072						
	½	¾	0.0060	0.0062	0.0066	0.0070	0.0073	0.0077						
	¾	1	0.0065	0.0068	0.0071	0.0075	0.0078	0.0082						
	1	1½		0.0074	0.0078	0.0081	0.0084	0.0088						
14	⅜	½	0.0056	0.0059	0.0063	0.0066	0.0070	0.0074						
	½	¾	0.0060	0.0063	0.0067	0.0070	0.0074	0.0078						
	¾	1	0.0064	0.0067	0.0071	0.0074	0.0078	0.0082						
	1	1½	0.0069	0.0073	0.0076	0.0080	0.0084	0.0088						
	1½	2	0.0076	0.0079	0.0083	0.0086	0.0090	0.0094						
12	⅜	½	0.0056	0.0059	0.0063	0.0066	0.0070	0.0074						
	½	¾	0.0060	0.0063	0.0067	0.0071	0.0074	0.0078						
	¾	1	0.0064	0.0067	0.0071	0.0074	0.0078	0.0082						
	1	1½	0.0069	0.0073	0.0076	0.0080	0.0084	0.0088						
	1½	2	0.0076	0.0079	0.0083	0.0086	0.0090	0.0094						
10	⅜	½	0.0061	0.0065	0.0069	0.0072	0.0076	0.0080	0.0084					
	½	¾	0.0066	0.0069	0.0073	0.0076	0.0080	0.0084	0.0088					
	¾	1	0.0071	0.0075	0.0078	0.0082	0.0085	0.0089	0.0094					
	1	1½	0.0077	0.0081	0.0085	0.0088	0.0092	0.0096	0.0100					
	1½	2	0.0085	0.0089	0.0092	0.0095	0.0099	0.0103						
8	½	¾		0.0072	0.0076	0.0079	0.0083	0.0087	0.0091	0.0096				
	¾	1		0.0077	0.0081	0.0084	0.0088	0.0092	0.0096	0.0101				
	1	1½		0.0084	0.0087	0.0090	0.0094	0.0098	0.0102	0.0107				
	1½	2		0.0091	0.0095	0.0098	0.0102	0.0106	0.0110	0.0115				
	2	3		0.0100	0.0104	0.0107	0.0111	0.0115	0.0119					
6	¾	1			0.0086	0.0089	0.0093	0.0097	0.0101	0.0106	0.0110			
	1	1½			0.0092	0.0095	0.0099	0.0103	0.0107	0.0112	0.0117			
	1½	2			0.0100	0.0103	0.0107	0.0111	0.0115	0.0119	0.0124			
	2	3			0.0108	0.0111	0.0115	0.0119	0.0123	0.0128	0.0433			
	3	4			0.0119	0.0122	0.0126	0.0130	0.0134	0.0139	0.0144			
4	1	1½												
	1½	2												
	2	3												
	3	4												
	4	6												

All dimensions shown are in inches.

(Article page 129)

July 1944

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Industrial Standardization

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RUTH E. MASON, Editor

Our Front Cover: Table 6, Whitworth Screw Threads of Special Diameters, Pitches, and Lengths of Engagement—Pitch (Effective) Diameter Tolerances—Class 2 (Medium) of the American War Standard on Truncated Whitworth Threads.

This Issue

Our Pictures—135, 136—General Electric Company.

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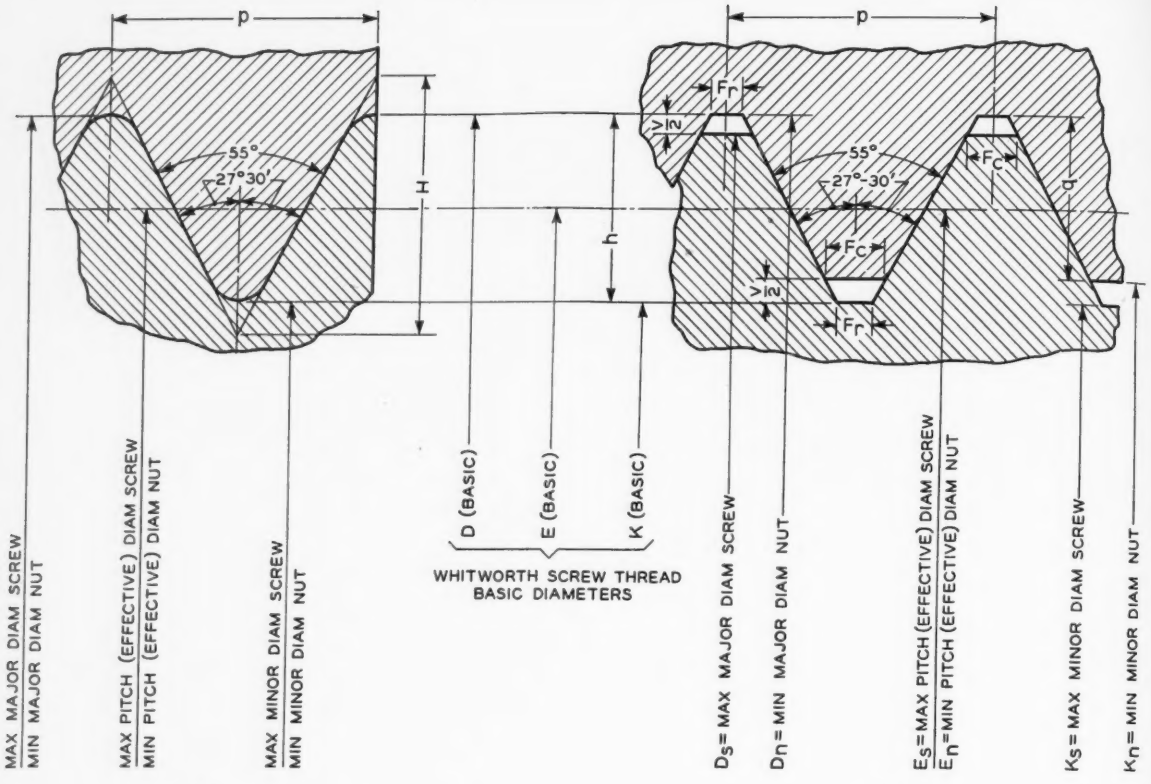


Fig. 1

Full-form British Standard Whitworth Thread

Fig. 2

American Truncated Whitworth Thread

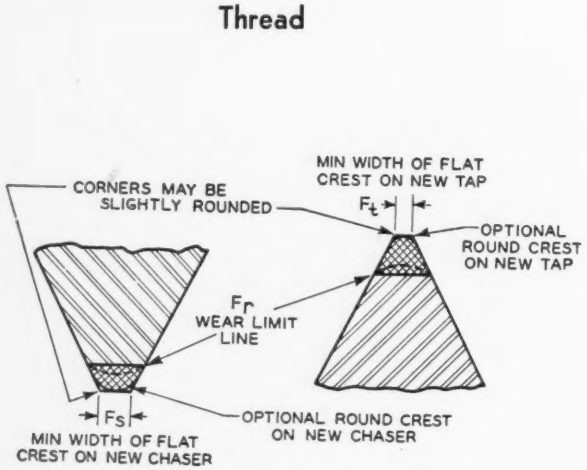


Fig. 3

New Chaser

Fig. 4

New Tap

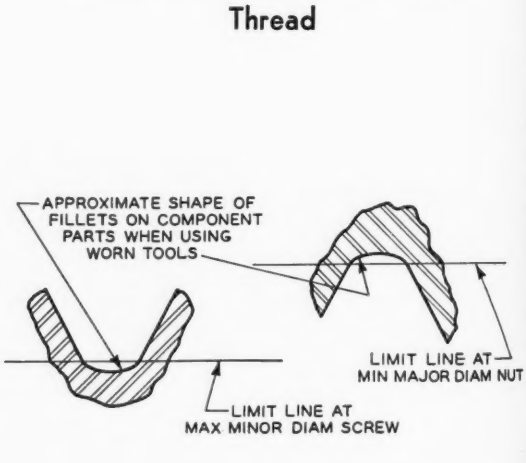


Fig. 3-A

Screw

Fig. 4-A

Nut

It is intended that American Truncated Whitworth Threads are to be produced by means of tools having flat crests and sharp corners when new. However, if the purchaser of the components wants the threads to have round roots, even when produced with new tools, round tool crests are optional. The flat tool crests, as well as the optional round tool crests, are shown above.

These figures show the approximate shapes of the roots of threads on component parts produced with tools that have reached their permissible wear limit. This applies whether the tools had flat or round crests when new.

New War Standard for American Truncated Whitworth Threads

by John Gaillard[1]

Secretary, ASA War Committee on Screw Threads of Truncated Whitworth Form

THE American War Standard, Screw Threads of Truncated Whitworth Form (American Truncated Whitworth Threads), B1.6-1944, has now been approved and published by the American Standards Association. It was developed by an ASA War Committee (Elmer J. Bryant, Greenfield Tap and Die Corporation, *chairman*), organized in 1943 by request of the War Production Board. Truncated threads produced according to this standard are fully interchangeable with full-form threads produced according to the British Standard, Screw Threads of Whitworth Form, B.S. 84-1940, which covers coarse and fine threads, straight pipe threads, and special threads.

British Standard Full-Form and American Truncated Threads

For the sake of comparison, the full-form British Standard Whitworth Thread and the American Truncated Whitworth Thread are shown side by side in Figs. 1 and 2. It should be noted that while the truncated threads in Fig. 2 are shown with sharp-cornered roots, the American War Standard permits the purchaser of threaded components to specify that the threads be produced with rounded roots, even when new threading tools are used. However, this requirement must be explicitly stated in the specifications for the threads. Otherwise, it must be assumed that the threads are to be produced by means of tools having flat crests when new. The flat crests and the optional round crests of a new chaser and a new tap are shown in Figs. 3 and 4, together with the approximate shapes of the tool crests when they have reached their permissible wear limits. The shapes of the shallowest roots of screw and nut produced with such worn tools are shown in Figs. 3A and 4A.

Original System Designed by Archibald E. Smith

The original design of a system of American Truncated Whitworth Threads was made by Archibald E. Smith, Senior Ordnance Engineer, Army Ordnance Department. Late in 1941, the Ordnance Department was in the process of developing a British gun for American manufacture. This involved a special Whitworth thread and it appeared that it would take a long time to procure the threading tools and gages required for producing and checking the full-form Whitworth profile. Mr. Smith then worked out a system of truncated Whitworth threads, including gaging specifications, which could be produced with flat-crested threading tools—that is, the kind of tool commonly used in this country for producing American Standard threads. This system appeared to be entirely satisfactory in practice and had the great advantage that the tools and gages required for the truncated Whitworth threads were supplied in about two weeks, while delivery of tools for producing full-form Whitworth threads would have taken at least three months. The same problem arose in regard to many other items manufactured in this country on the basis of the lend-lease agreement with the British.

American War Standard Truncated Whitworth Screw Threads are fully interchangeable with full-form British Standard Whitworth Threads

NOTE: In recognition of the merits of his system, Mr. Smith has been presented with the Exceptional Civilian Service Award of the War Department. (See page 130.)

Smith System Used as Basis for American War Standard

The system designed by Mr. Smith served as the basis for the work of the ASA War Committee which developed a draft American War Standard and discussed this draft with the members of a British technical mission in November and December, 1943. Through arrangements made by the Combined Production and Resources Board, this mission had come to the United States to discuss with American and Canadian experts screw thread problems of common interest to their respective countries.[2]

A number of changes in the draft standard were agreed on, and details of revised proposals were worked out through close cooperation between Mr. Harley of the British mission and Mr. Bryant, member of the ASA War Committee. The British mission also promised that, upon its return to England, it would propose certain modifications of the British Standard, B.S. 84-1940, in an effort to get agreement between the main features of truncated Whitworth threads, as specified in this British standard, and American truncated Whitworth threads.

The members of this British mission were:

Francis W. Elstub, Technical Advisor to Ministry of Supply (Alfred Herbert, Ltd., Coventry, England)
Percy Good, C.B.E., Technical Advisor to Ministry of Supply (Director, British Standards Institution, London, England)
Stanley J. Harley, Controller of Jigs, Tools and Gages, Machine Tool Control, Ministry of Supply (Managing Director, Coventry Gauge and Tool Company, Coventry, England)

[1] Mechanical Engineer, American Standards Association.

[2] A review of the British-American conference was published in the December, 1943, issue of INDUSTRIAL STANDARDIZATION.

Archibald E. Smith receiving the War Department's Exceptional Civilian Service Award for the development of his truncated screw thread system. Major General L. H. Campbell, Chief of Ordnance, presented the award.

British Truncated Whitworth Threads

The British Standard, B.S. 84-1940, makes provision for truncated major diameters of external threads with close or medium tolerances, but merely specifies a *minimum* limit for the truncation. The maximum limit of the crest may lie anywhere between the basic major diameter and the minimum limit, or in other words, the maximum limit is left to the manufacturer of the threaded components.

In the British-American conferences it was agreed that, since the British minimum limit of truncation specified for a given kind of British Whitworth thread is located between the maximum limit and the minimum limit proposed for the corresponding American truncated Whitworth thread, an effort should be made to have the Americans and the British agree on the adoption of the same minimum limit. To meet on the same level, the Americans would have to raise the minimum limit of the truncation specified in their 1943 proposal, and the British would have to lower the minimum limit given in B.S. 84-1940.

For example, according to the British Standard, B.S. 84-1940, the minimum limit to which the crest of an external fine thread, nominal size 1 inch (10 threads per inch), may be truncated is 0.9810 inch. The maximum and minimum limits proposed in 1943 for the corresponding American truncated Whitworth thread were 0.9852 and 0.9744 inch. In the American War Standard now approved, the minimum limit for this kind of thread has been increased to 0.9770 inch. Accordingly, the tolerance on the major diameter of the screw has been reduced from 0.0108 to 0.0082 inch.

It is expected that the question of lowering the British minimum limit of truncation will be discussed when an American return mission visits England in the near future.

How Far Will Use of Truncated Threads Be Permitted?

Another point due for further discussion with the British is to what extent the British Ministry of Supply will permit the use of truncated Whitworth threads, independent of whether the threads are truncated according to the British Standard or according to the American War Standard. In the British-American conferences of 1943, it was brought out that American manufacturers of threaded parts intended for delivery to the British, more particularly ammunition components, had experienced trouble with the acceptance of such parts by inspectors in Canada. It was reported that these inspectors checked external Whitworth threads with a Go ring gage and a plain Not Go snap gage. The latter was set to the minimum limit of the full-form British thread and, therefore, would reject truncated threads. In fact, the manufacturer had to be careful in having the major diameter of his threads come up closely to the basic diameter of the full-form thread and thus was deprived of a portion of the pitch diameter tolerance.

One of the members of the British mission explained that it was a traditional practice of long standing with the British War Office to gage the major diameter of screws with a snap gage made to the basic major diameter, to be sure that the threads did not exceed their nominal size. Specific examples of cases where American firms have had such difficulties were supplied to the members of the British mission who agreed to take this matter up with the authorities in England, so as to get a clear-cut picture of the extent to which the use of truncated Whitworth threads would be permitted.

New War Standard Temporary

During the development of the new American War Standard, the ASA War Committee has consistently made it clear that this standard is intended solely to serve as an emergency measure and not to become an addition to the American Standards for screw threads already established.

The Interdepartmental Screw Thread Committee of the U. S. Government, which has closely cooperated with the ASA War Committee in the development of the new standard, has decided to publish it in the next edition of Handbook H28, *Screw Thread Standards for Federal Services*, as an Appendix.

Purchaser to Use Judgment

While the standard was being developed, the question arose as to whether American suppliers of threaded components, who are tooled up for producing full-form Whitworth threads, would have to change their tooling.

War Standard Available from ASA

The American War Standard, Screw Threads of Truncated Whitworth Form (American Truncated Whitworth Threads), B1.6-1944, is available from the ASA at 50 cents per copy.

upon approval of the American War Standard, to produce American Truncated Whitworth Threads. In answering this question, it was made clear that in final analysis this is a matter of agreement between the purchaser and the supplier of the components under consideration. The new standard has been set up for the purpose of facilitating the production of Whitworth threads by American manufacturers by permitting them to use flat-crested threading tools and gages. However, if the supplier is tooled up for producing full-form threads, obviously it would be uneconomic, and would also slow delivery, if he were required to change his tooling solely to produce truncated threads. If possible, therefore, the purchaser of threaded components should leave the choice between the two systems (full-form or truncated) to the supplier. In some cases, the purchaser may find it necessary to insist on full-form threads; for example, the product may have to meet specifications of the British Ministry of Supply that do not permit the use of truncated threads, as explained above. It may also happen, however, that the purchaser has a reason for requiring the supplier to produce American Truncated Whitworth Threads. The purchaser may be tooled up himself for producing these threads and, consequently, may have available the gages for checking them. (These gages differ in some respects from those required for checking full-form threads.)

Standard Clause Covers Three Cases

In order that the requirements in each individual case may be perfectly clear in dealings between purchaser and supplier, and hence, that the supplier can most economically and in the shortest possible time fill an order on components having Whitworth threads, the following clause has been written into the American War Standard:

"It is recommended that the purchaser of component parts which are to be provided with Whitworth threads indicate clearly whether the supplier is required to produce American Truncated Whitworth Threads according to this standard, or full-form British Standard Whitworth Threads according to the British Standard 84-1940, or again, whether either kind of thread will be acceptable."

Obviously, this point will have to be considered first of all by the original contractor. If he decides that full-form threads are required, he must pass this condition on to subcontractors. On the other hand, if either full-form or truncated threads are acceptable, this easing of the specifications should also benefit the subcontractor so that he may use the tooling equipment available in his plant. For this reason, the decision of the British Ministry of Supply as to whether truncated threads will be permissible on ammunition components and other threaded products, will be awaited with interest by American manufacturers.

The ASA War Committee on Screw Threads of Truncated Whitworth Form, which was responsible for the development of the new American War Standard, was organized at the request of the War Production Board. Its members are:

Earle Buckingham, Massachusetts Institute of Technology, *Chairman*
W. L. Barth, General Motors Corporation
H. W. Bearce, National Bureau of Standards
Elmer J. Bryant, Greenfield Tap and Die Corporation
Paul Des Jardins, Pratt and Whitney Division, Niles-Bement-Pond Company
W. H. Gourlie, R. T. Palmer Company
D. R. Miller, National Bureau of Standards
F. E. Richardson, Army-Navy Aeronautical Board
Archibald E. Smith, Army Ordnance Department
John Gaillard, American Standards Association, *Secretary*

New Standard to Provide Protection in X-Ray Use

One of the results of the expansion of industry under war pressure is the development of new methods in production, assembly, and inspection. To meet the requirements that have grown up with war needs, X-ray is being widely used. Recently, news reports have stated that the use of X-ray in industry has increased 2,000 percent in the last two years.

Since the greater number of workers are necessarily new and inexperienced and often without benefit of sufficient instruction, the use of this equipment may bring about many serious disabilities. Some of the effects of excessive exposure to X-rays may not be seen at once. It takes years, for example, for symptoms of skin cancer, anaemia, sterilization, or even cataract resulting from such exposure to appear.

Because of the increasing need for protection of workers, the American Standards Association has initiated a war project at the request of the U. S. Department of Labor, Division of Labor Standards, looking to the development of an American War Standard, Protection in the Use of X-Ray Equipment (Z54).

Recognizing the need for protecting peacetime workers as well as wartime workers the Division of Labor Standards suggested that a peacetime project operating under the regular procedure of ASA should also be initiated. The suggestion was also made that the National Bureau of Standards should sponsor the peacetime program. These suggestions are now before the ASA and will be acted upon in the early fall.

The National Bureau of Standards has published a handbook on X-ray Protection HB-20 for use in the medical field. This will serve as a source of information for the new committee.

War Department Representation on Mechanical Standards Committee

Colonel Harry B. Hambleton, Office, Chief of Ordnance, has been appointed the War Department's representative on the Mechanical Standards Committee of the ASA, succeeding Colonel Daniel J. Martin.

Captain George L. Pfromm, Office, Chief of Ordnance, has been appointed Colonel Hambleton's alternate on the MSC succeeding Captain J. L. Layton, Colonel Martin's alternate.

How Canadian Standards Association Carries Out Certification Program

THE Canadian Standards Association has just completed the fourth year in which it has been responsible for the testing and approval of electrical equipment sold in Canada, assuring that such equipment meets the requirements of the Canadian Electrical Code. Its Approvals Service, through which the testing and certification program is carried out, is maintained and financed as a separate division of the Association, and has developed into a good-sized undertaking in itself. Through its work, the people of Canada are assured that electrical equipment sold in Canada has met the required tests and does not constitute a fire hazard or shock hazard.

The Approvals program is implemented through the inspection departments of the Provincial Governments, which have made the Canadian Electrical Code and the associated specifications for construction and test of electrical equipment mandatory in all parts of Canada, as a protection to life and property.

Electrical equipment which is produced in sufficient volume to justify issuing labels in quantity may carry the Association's seal of approval. In this way the over-the-counter purchaser can check on whether the electrical wiring or electrical appliances he buys are safe as far as fire and shock hazards are concerned. Other types of electrical equipment which meet the requirements of the Approval tests are listed as Approved by the Canadian Standards Association and the lists sent regularly to the Provincial inspection authorities.

Approval Service Extended to All Canada

The approval of electrical equipment in Canada was started by the Underwriters' Laboratories of the United States and by the Hydro-Electric Power Commission of Ontario. The latter operated originally as a service for the Provincial Government of Ontario. The demand for the service soon extended throughout the other Canadian Provinces, however, and although the Hydro-Electric Power Commission broadened its service as far as possible, it was soon found desirable that a national organization should be responsible for the approval program for all Canada.

The Canadian Standards Association (then the Canadian Engineering Standards Association) was already in charge of the work on the Canadian Electrical Code, which with the associated specifications for construction and test define the requirements for safe electrical equipment. On May 1, 1940, the Association became responsible for the testing and approval of the equipment; and since that time all approval of electrical equipment in Canada has been done by the Canadian Standards Association.

For the testing and inspection necessary before approval can be given, the Association makes use of the laboratory of the Hydro-Electric Power Commission of Ontario, and in addition has made arrangements with the Underwriters' Laboratories in Chicago and other testing laboratories which have the equipment necessary for making the required tests.

The Canadian Standards Association maintains close cooperation with Provincial and municipal inspection authorities through its Approvals Council. Members of the Council are the Chief Electrical Inspectors of the various provinces and representatives of insurance underwriters. The Council serves as a medium of communication between the Canadian Standards Association and the inspection authorities, votes on laboratory approval reports, and acts in an advisory capacity in matters of approval.

Approvals Board Administers Program

An Approvals Administrative Board acts for the Executive Committee of the Canadian Standards Association in managing the Approvals Division. This Board conducts all the affairs of the Division, but reports to the Executive Committee.

The chairman of the Approvals Administrative Board is W. P. Dobson, chief testing engineer of the Hydro-Electric Power Commission of Ontario.

An Approvals Engineer is in immediate charge of the program. Tests are made on application from the manufacturer. When all the tests have been finished by the laboratory and when they show that all the requirements of the National Electric Code and the specifications have been met, a report is prepared recommending approval and sent to each member of the Approvals Council with a letter ballot. If two-thirds of the members are in accord with the recommendations for approval, the secretary, in the name of the Association, issues a notice of approval. The organization submitting the equipment for test is required to enter into an agreement with the Association providing for periodic follow-up inspection.

Report Weekly on Approvals

Lists of approved equipment are published periodically by the Association, and in addition a report is forwarded weekly to each member of the Approvals Council listing the applications received, the approval recommendations, and the names of manufacturers whose approval may have been cancelled. In this way the Provincial Inspection Authorities are kept in continuous touch with the Approvals Divisions.

The Approval service does not stop, however, with the first test and approval. A follow-up inspection

service is provided in order to maintain a continuous check upon the quality of the approved equipment. This consists of two types of service—the "Label Service" and the "Re-examination Service." The "Label Service" includes periodic examination of the equipment, and applies to the type of equipment which can be produced in sufficient volume to justify issuing labels in quantity. The manufacturer may apply these labels to his equipment to indicate compliance with the standards. The charge for this service depends upon the number of labels used, subject to a minimum annual fee.

The "Re-examination Service" applies to equipment which cannot be readily labeled and which is not produced in sufficient quantity to justify the Label Service. There is an annual inspection fee for testing and inspection of such equipment.

Close contact is maintained between the Approvals Division of the Canadian Standards Association and the committee working on the Canadian Electrical Code, through the membership of the Approvals Engineer on the committee.

The Approvals Service is operated at cost.

In regard to future developments in certification as carried out by the Canadian Standards Association, Colonel W. R. McCaffrey, secretary of the Association, made the following statements in a paper presented before the Affiliated Engineering and Allied Societies in Toronto in May of this year. He said:

"What the future may hold, I cannot predict, but in the operation of the label service of the Approvals Division, the CSA is gaining experience that may be useful in an application of a voluntary 'certification label service' to consumer commodities and manufactured articles generally. This, however, should not be confused with the practice of 'grade labeling,' which is an entirely different proposition. It is my belief that the use of national marks or symbols such as 'Canada Standard' or 'CSA Standard,' based on accepted minimum standards of quality and performance, is beneficial rather than detrimental to free enterprise and does not jeopardize the prestige of established standard brands of individual manufacturers.

"The trend in the direction of certification labeling is very apparent in some other nations and, in time, manufacturers in Canada may generally endorse the claims that are made, as to its advantages, by proponents of certification labeling that may lead to the development of the practice on a nation-wide basis. In these statements I neither recommend nor condemn the practice of 'certification labeling,' but merely desire to remind you that such developments in other nations must eventually have an influence tending toward similar developments in Canada."

Torres and Souza Are ASA Visitors from Brazil

DR. ARY F. TORRES, president of the Associação Brasileira de Normas Técnicas (ABNT), the Brazilian Standards Association, was a visitor to the American Standards Association while he was in New York last month. Dr. Torres was in the United States as a member of the Brazilian delegation to the Conference of the Inter-American Development Commission. In addition to his work with the standards association, Dr. Torres is president of the Brazilian Association of Portland Cement in São Paulo, president of the Brazilian Federation of Engineers in Rio de Janeiro, and Professor in the Polytechnic School of São Paulo. As Director of the Laboratories for Testing Materials (now the renowned Institute of Technological Research) in São Paulo, Dr. Torres had experience early in his career with the use of standards and standard test methods. In addition to his scientific and engineering connections, however, he has also been closely associated with industry, having been vice-president of the National Steel Company of Brazil and head of the Industrial Production Sector of the Ministry of Economic Mobilization.

Dr. Torres was a guest of the ASA Board of Directors at a lunch at the Engineers Club in New York.

In response to a welcome by President Bryans of the ASA, Dr. Torres spoke of the cooperative relations between the national standardizing bodies of the Western Hemisphere, which he declared are growing closer and more important. He also spoke briefly of a proposal he had made to the Conference of the Inter-American Development Commission for the organization of a Pan American Committee on Technical Standards. As a result of his proposal, the Conference had voted to recommend the organization of groups to promote technical standards in all American countries where they do not now exist. It also recommended that a Pan American Committee on Technical Standards be set up under the sponsorship of the Pan American Union, with three representatives from each country.

Souza, ASA Local Representative

M. E. Souza, ASA local representative in Brazil, who has been in this country for a few weeks, also has visited the American Standards Association. Mr. Souza is an American engineer who has lived for many years in Brazil. He is assistant to the president of the General Electric Company in Rio de Janeiro, and chairman of the American Chamber of Commerce in the Brazilian capital. In his capacity as field representative of ASA, Mr. Souza has established close cooperative relations between the standards bodies of the United States and Brazil. His intimate knowledge of Brazilian conditions has enabled him to assist the Inter-American Department in New York in its plans for the development of the program. He was present at the last meeting of the Inter-American Advisory Committee.

New Edition Brings
Terminal Markings
UP-to-Date

by C. M. Cogan[1]

Secretary, ASA Sectional Committee on Rotation, Connections, and Terminal Markings of Electrical Power Apparatus, C6

THE fourth edition of the American Standard for Terminal Markings for Electrical Apparatus, C6.1-1944, has been completed under the sponsorship of the National Electrical Manufacturers Association and approved by the American Standards Association. This enlarged edition represents the latest efforts of the sponsor and the sectional committee to keep the basic rules for identifying terminals in step with the latest developments in the electrical industry. Under the leadership of NEMA, as sponsor, this policy has been followed consistently since the first edition was issued under the procedure of the American Standards Association in 1925.

During the interim, the need for the American Standard for marking terminals on electrical machines has increased with the growing complexity of electrical apparatus. Early electrical machines were simple in construction, and consisted of a few exposed coils of wire anchored to a stationary yoke surrounding a rotating member. One could easily see which leads were connected to the field and which to the armature, and a standard system of marking was, therefore, unnecessary.

As years passed, machine design became more refined, and greater versatility was demanded. The open motor gave way to the enclosed motor, which often was built into the driven machine. The exposed air-insulated transformer gave way to the oil-immersed transformer, power systems grew in size and in interconnections, higher voltages appeared, and large concentration of power sprang up everywhere.

No longer was it possible to identify terminals by the simple expedient of inspection. Both equipment and power systems became too important and the consequences of damage and delay too great to trust anything short of a *positive system of terminal identification.* Thus, in reality, a new language became necessary—the language of terminal identification. In the American Standard, this language has been made so simple that it can be learned by anyone with sufficient intelligence to handle electrical equipment.

Unlike most languages, this one started from scratch. Luckily, the authors of the new language were not handicapped by traditions or outmoded practices. The language was made to fit the situation, and additions were made only to meet new and necessary situations. While there are many interesting steps in the development of the language, suffice it to say that it is distinctly mnemonic in character: F_1 stands for one field lead, F_2 the other; A_1 stands for one armature lead, A_2 the other.

Greater Significance of Terminal Markings

There is a definite relation between (1) the markings assigned to leads or terminals in the case of rotating machines, (2) the manner in which those leads are connected to the power supply, and (3) the direction of shaft rotation. All three of these factors are tied together with terminal markings occupying a mid position and establishing the connecting link between the other two.

Only by a full understanding of the significance of terminal markings can there be complete appreciation of the relationship between power supply on the one hand and mechanical utilization on the other. However, the utility of terminal markings is not confined to machines having rotating shafts alone. The static transformer, the instrument transformer, control apparatus, switchgear apparatus, and a host of other kinds of electrical equipment, all of which have no major rotating element, come in for their own. Each of these pieces of equipment has a function to perform, not alone, but in relation to other equipment with which it is electrically connected and required to operate as a unit. Phase rotation, phase angle, and phase sequence are a few of the many features which must be correctly provided for by the markings assigned to the terminals.

Transformer Markings

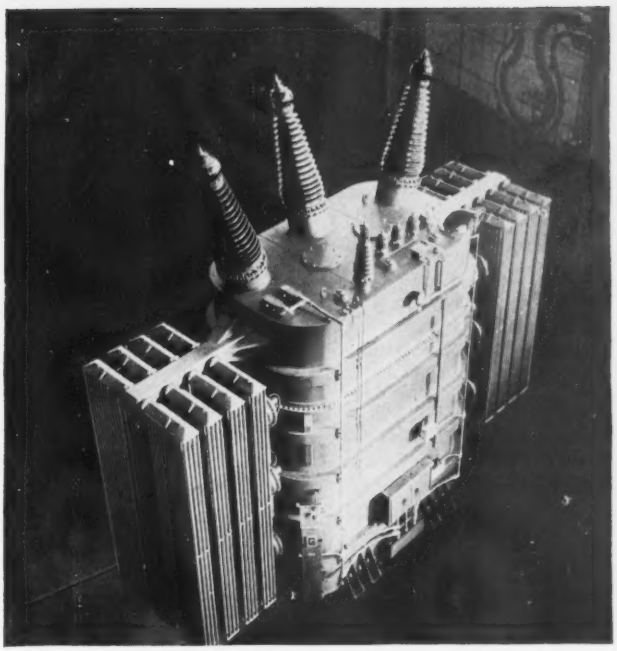
Most people know that the grounded neutral lead X_2 of the simple two-winding transformer shown in the sketch should be identified by some sort of distinguishing mark or color. The simplest kinds of wiring make that distinction. Few, however, realize the equal need for identifying the other leads, yet they are just as essential and should be identified just as carefully as the grounded one. Their identification is just as necessary for anyone who may install or change the location of a transformer. Such a person must have sufficient identification of the leads to understand their full significance. He must know that the instantaneous current which enters at the lead marked H_1 leaves at the X_3 lead. Unless he knows this, the transformer may be connected 180 degrees out of phase with serious

[1] Secretary, Codes and Standards Committee, National Electrical Manufacturers Association.

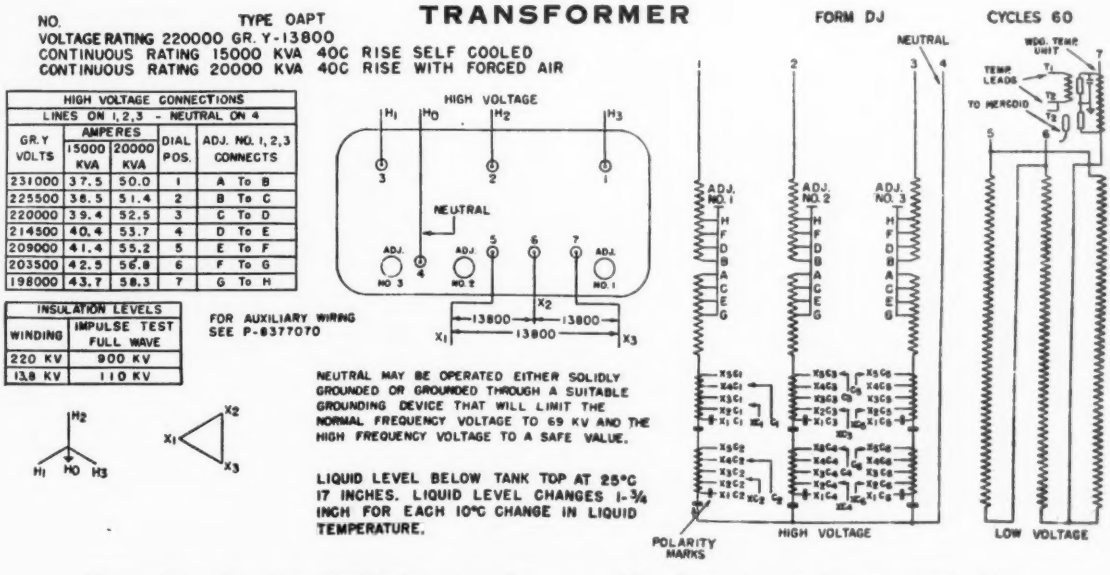
results. Once these principles are established and the leads marked, the operator may proceed with confidence to connect any transformers, *regardless of their manufacture,* to his system. He may parallel them with others, or he may obtain changes in angular displacement or in phase rotation, all of which are essential for correct relaying and power control. Without a universally accepted scheme for terminal markings, it would be necessary for the operator to keep elaborate office records and provide detailed engineering supervision in the field for testing individual transformers to make sure of the phase and polarity relations before installation or change from one location to another. The adoption of standardized lead markings and their universal use make it necessary to know only that identically marked leads must be connected together, regardless of their polarity or location on the transformer, provided the voltage, ratio, and impedance are correct.

Closing a Power-System Loop

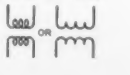
A problem frequently encountered, wherein terminal markings assume special value, is in the closing of a power-system loop, which in some cases may stretch across miles of country and consist of a number of step-up and step-down transformations. Usually, the transformers are of different manufacture and have different basic arrangement of their leads. In some instances, there may be single-phase banks, in others three-phase transformers. If it is desired to close the loop and thus obtain the benefits from interconnection, it becomes necessary to know the phase relationships between two ends of the loop. Ordinarily, this would be a most difficult process because of the wide variety of transformers with relation to rating, physical location of leads, and manufacture. The application of the principles set up in the American Standard, however, make it a relatively simple matter. It is possible to arrive at an angular displacement between the two ends of the loop by checking drawings filed at the engineer's office, no tests at the site



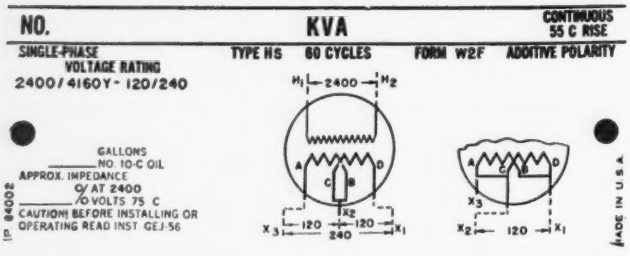
Transformers similar to this 3-phase self-cooled 15,000-kva, 22,000-volt transformer require much too great an investment to depend upon anything short of a positive scheme for terminal identification.



Nameplate for the 15,000-kva transformer. All of its terminals are marked in accordance with the American Standard, thus insuring full understanding by those who will operate the transformer throughout its many years of useful life. The chances of damage through wrong connection are greatly reduced.

NOTE: The transformer symbols shown here are the symbols used prior to the adoption of the American War Standard, Coordination of Electrical Graphical Symbols. It is intended that they will be replaced with the new coordinated symbols for transformers which will be 

Left:—
The benefits obtained from terminal markings are not limited to large transformers. This small 3-kva EEI-NEMA standard pole-mounted distribution transformer must have its leads positively identified, the same as the large 15,000-kva transformer.



Below:—
The diagram shows a close-up of the nameplate permanently fastened to the transformer. Similarly marked terminals on the large transformer perform in the same manner as those on the small transformer.

being necessary. Were it not for a universally accepted standard, two time-consuming alternatives would be necessary:

(1) To obtain drawings from the manufacturer and trace out in detail the phase relations from the detailed winding drawings, a procedure conducive to error; or

(2) To disconnect and individually test each machine (rotating machine as well as transformer) in the loop for phase relationship.

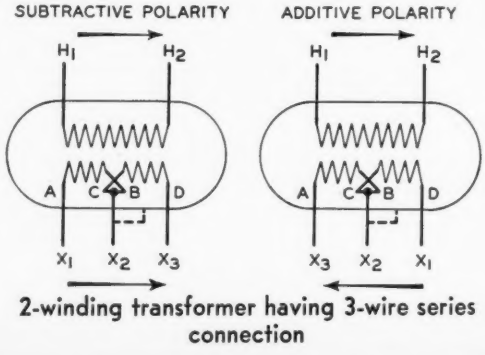
These examples, like many others, such as tying network transformers to existing systems, connecting single-phase units in three-phase banks, connecting three-phase or single-phase transformers in parallel with three-phase transformers, all depend on knowledge of the location of the bushings with respect to the various windings and inductive relations between the windings. A knowledge of the standard, plus the markings on the nameplate, and the physical relation of the bushings to their location on the nameplate drawing, immediately give the necessary information to the operator. Often terminal markings are not actually placed on the leads or the terminal themselves. This is especially true in the case of large transformers which, on account of their size, make it more convenient to show the markings of the terminals on a nameplate securely fastened to the transformer. This feature is well illustrated in the case of the large 20,000 kva, three-phase transformer shown in the photograph. The same basic reasoning applies also to the 3-kva transformer, whose leads are identified either by markings placed directly on them or by the nameplate securely fastened to the case. In both instances, identification is important to insure proper installation, maintenance, and use throughout their life.

New Markings

As with every language, the effectiveness of the language for terminal markings rests on its permanence. In twenty years of existence, no changes have been made in the basic concepts once they have been established. Conversely, no barriers have been placed in the way of adding to or supplementing the basic concepts formerly established. Admittedly, the need has existed from time to time to add new markings to meet new situations, but all of these have been related to the previously established principles. The process has been one of gradual evolution, extending from a few basic and widely accepted concepts.

Capacitor motors, with their many auxiliary devices and leads, present a case at point. A new section has been added for capacitor motors. The letter "J", as one might expect, has been assigned to the terminals of the capacitor used with capacitor motors. For many years the letter "J" has been used to designate out-of-phase current, the generation of which is the sole function of the capacitor. Likewise, the letter "H", an old character for transformer windings, is employed for the terminals of the auto transformer. The coil terminals for the relays or contactors carry the same terminal markings and the same subscripts as the leads to which these devices are connected, thus simplifying connections and avoiding the addition of new letters for auxiliary devices.

Industrial control is another illustration of additional material. These markings have been greatly augmented by the addition of new ones for resistors, brakes, and starting reactors, all of which are finding a continually expanding place in industrial control. The outgoing terminals or leads from industrial control apparatus assume the same markings as those of the



2-winding transformer having 3-wire series connection

The current which enters at H_1 leaves at X_3 at the same instant. The X_3 lead is diagonally opposite H_1 for subtractive polarity and directly opposite for additive.

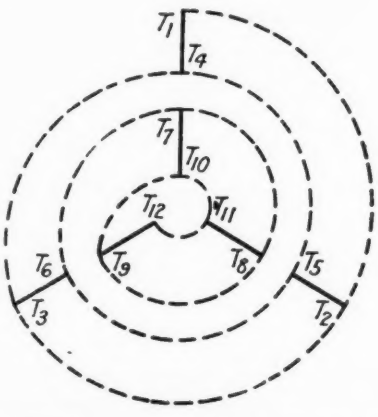
apparatus to which they connect. All the purchaser need do is to connect similarly marked leads coming from industrial control apparatus to those coming from the machines and he will *be assured of correct operation.*

The sections dealing with markings for instrument transformers and reactors have been greatly augmented, and the material has been made to agree with similar provisions in the American Standard for Transformers, C57. An entirely new section has been added on electric water heaters. Color is employed as a means of identifying the wiring for electric water heaters and associated devices. This is the first time that color has been introduced in the American Standard as a means of identification—circuit identification from thermostat to heater unit, in this case.

Why Marking Is Essential

It would be difficult to minimize the importance of this American Standard for Terminal Markings for Electrical Apparatus, C6, or to underestimate its effect on the uniformity of marking for terminals since the first edition in 1925. A glance at the record will show that, prior to the establishment of the American Standard, wide divergence was current. In fact, so wide was the divergence that the markings were without meaning to the average person who had occasion to use them. One manufacturer's files reveal the sad situation of different markings being used for the same equipment by different departments located under the same roof. For illustration, the markings for the leads for control or switchgear equipment, the responsibility of one department, frequently were totally different from those employed by another department for the same equipment. Yet, in spite of this wide divergence, the different pieces of equipment furnished by the several departments had to operate together as a single installation. It is not difficult for the reader to imagine the dilemma in which the unsuspecting purchaser found himself in the days before a universal language was adopted. That situation, serious though it was, would, of course, be magnified several times today, owing to the greater complexities of aparatus, were it not for the fact that a universal language for terminal markings has been established through the adoption of an American Standard.

With the adoption of an American standard, the purchaser, contractor, operator, maintainer, second-hand dealer, repair shop, and others, can be assured that the leads or terminals which are marked in accordance with this standard assume their intended significance. It should be realized that only a T_1 lead connected to phase A, a T_2 lead connected to phase B, and a T_3 lead connected to phase C will produce the desired direction of shaft rotation and other features of performance.



Terminal markings are assigned to the leads in "spiral rotation."

Appreciation of this simple fact enables anyone, even the most uninitiated, to identify all leads in their proper vector relation at a glance. The purpose of this spiral diagram is to mark the stator terminals of a 3-phase induction motor having two circuits per phase.

The American Standard Terminal Markings for Electrical Apparatus, the fourth edition of which has just been approved by the American Standards Association, has had a long history. The earliest edition was prepared in 1918 as an industry standard by The Electric Power Club, an association of apparatus manufacturers, later reorganized to form the National Electrical Manufacturers Association. The first edition of the standard was prepared by The Electric Power Club after a thorough study of the terminal markings in use by the different manufacturers, as well as of all schemes for terminal markings which had been proposed in different countries up to that time. The system finally selected consists of a characteristic letter assigned to each class of connections, and differentiation between the various terminals of each class by the use of sub-numbers. For instance, the letter A always indicates a brush on a commutator, whether used for alternating-current or direct-current machines. Individual connections on the same diagram or machine are distinguished by marking them A_1, A_2, etc.

In 1920, the National Electrical Manufacturers Association asked the American Standards Association (then the American Engineering Standards Committee) to organize a project on terminal markings. A sectional committee was organized by the ASA, including representatives of the various groups concerned, and sponsored by the National Electrical Manufacturers Association. After four years work the standard was completed, and was approved by the American Standards Association in April, 1925. A revision of the American Standard, making it possible to determine terminal markings for any number of leads from a motor, rather than for six only as had been the case with the 1925 edition, was completed and approved in 1936.

The American Standard Terminal Markings for Electrical Apparatus, C6.1-1944, is available at $1.00 per copy.

The value of any standard is in direct proportion to the extent to which it is used. That is axiomatic, and is especially true of a standard of this variety which, in effect, establishes a language—the language of terminal identification for electrical apparatus. For the benefit of those readers who wish to know more specifically the kinds of apparatus which are covered by the standard, the following list is given.

Generators—a-c and d-c
Motors—capacitor, multi-speed, and other varieties
Transformers—power and distribution
Feeder Voltage Regulators—step and induction types
Electric Water Heaters—including connections to thermostat
Attachment Plugs and Receptacles
Industrial Control
Instrument Transformers
Current-Limiting Reactors

As time goes by and occasion arises, no doubt many more sections will be added. The committee welcomes suggestions for additions coming from any source whatsoever. If the reader of this article should have suggestions for the marking of additional equipment, be sure to pass them along to the ASA.

A Marked Lead Needs No Check

In closing, may I ask you to bear in mind two things: (1) that this, the American Standard, establishes nationally accepted characters for the marking of leads or terminals, and (2) that the act of marking, itself, is a great time saver and a positive safeguard when making or changing connections for electrical apparatus.

Remember, a marked lead needs no check.

Canadian Standards Association Broadens Scope of Work

THE Canadian Engineering Standards Association, founded in 1919 to promote the adoption of standards for engineering products and materials, announces that its activities have now been broadened to cover standardization of materials and processes of all kinds. Its name has been changed to the Canadian Standards Association.

The change has been authorized by the Department of the Secretary of State of Canada, which has granted the Association Supplementary Letters Patent authorizing it to extend its activities to an unlimited field, as well as to increase its work within the scope of engineering. Before the reorganization, the Association had considered itself limited by the term "engineering" and therefore not responsible for standards on subjects which, strictly speaking, could not be considered engineering.

To Develop Standards for Any Subject

It now plans to initiate and develop Canadian standards for whatever subject may require them. Its responsibility will also be to coordinate work on standards and thus avoid duplication, and to act as a clearing house for information on standardization. It will provide the machinery through which Canadian organizations interested in standards may cooperate in order to avoid conflicting standards.

Its function will be to further the standarization movement as a means of advancing the national economy, to promote a knowledge and use of approved Canadian Standards in Canada and also in other countries, and to serve as an authoritative Canadian channel in international cooperation on standards.

International Program and Post-War Needs Brought Change

The reorganization of the Canadian association was carried through at this time because of the importance of international agreement on standards for equipment used in the war and for the immediate post-war period, the Association explains in announcing the change. It was recognized that Canada must have a national standardizing body in order to keep abreast of international developments. The value of standards in Canada's post-war trade was also recognized, and those concerned believed that the cooperation of a competent Canadian Standards Association should prove invaluable in both the international and post-war program.

The Canadian Standards Association is governed by a Main Committee consisting of from 80 to 100 members, representing such groups as the departments of the Dominion Government, the Provincial Governments, the manufacturing industry of Canada, public utilities, educational institutions, professional bodies, labor organizations, and insurance interests. The chairman of the Association is J. G. Morrow, chief metallurgist, Steel Company of Canada, Ltd. Colonel W. R. McCaffrey is secretary. The actual technical work on standards is done by committees, the membership of which constitutes a cross-section of Canada's industrial and professional engineers, representing both producer and consumer groups concerned. Some 200 Canadian standards have already been completed. Under its authority to register, use, and enforce trade marks and trade names, the Canadian Standards Association also operates a nation-wide inspection and approval service for labeling electrical equipment sold in Canada.

Department of Trade Recognizes Importance of Work

The importance of approved standards for materials and products as a valuable adjunct in establishing export trade is recognized by the Department of Trade and Commerce, officials of the Department have declared. The new status of the Canadian Standards Association will, they believe, place it in a position where it can perform a useful function in cooperating with industry and with the Department in furthering Canadian trade relations.

New British Magazine Tells of BSI Standards Work

THE British Standards Institution has just published the first edition of its new quarterly magazine, *Standards Review*.

"Standardization is a term often misunderstood, and it is hoped that a periodical review of standardization activities in this and other countries will lead to a better and wider understanding of its real nature and its great importance not only to the war effort but also for the development of a peace-time industrial economy," declares Percy Good, C.B.E., director of the BSI, in introducing the new magazine.

"'*Standards Review*'", he explains, "is now to be issued in response to many suggestions that the work of the Institution be given greater publicity. It will, however, not be limited to that work, but will include information as to the progress of the movement in other countries, and as to the co-operation between the British Standards Institution and other national standards bodies."

The British Standards Institution was organized in 1901 as the Engineering Standards Committee. Today its work includes standards for use in almost all important British industries, and recently it has been recognized by the Government as "the sole organization for the issue, in consultation with any Government, professional, or industrial bodies concerned, of standards having a national application."

Although it is an unofficial body, it has from the beginning received Government encouragement and support, and operates under a Royal Charter. The British Government helps support the British Standards Institution through a "grant-in-aid" to the funds of the Institution in proportion to the contributions of BSI members.

What the Magazine Includes

Important activities of the Institution reported in the *Standards Review* include standards for post-war building, standardization to simplify clerical work, translating of British Standards into Basic English, international cooperation in setting up the United Nations Standards Coordinating Committee, standards for packaging, development of a new code for temperature measurement, reports on work in progress in other countries, announcement of the handbook of British Standards for Workshop Practice, a discussion of the need for standards in the British electrical industry, consumer standards, and quality control.

One hundred forty specifications relating to building have already been issued by the BSI, the *Standards Review* reports, and 160 are now in active preparation. Recently, to carry forward plans for post-war standardization in the building field, a Standards Committee was set up by the Ministry of Works Directorate of Post-war Building, and a Codes of Practice Committee was organized by the Ministry of Works. The first committee will study the application of standard specifications to building and will make recommendations for the preparation of new British Standards. A first progress report has just been issued by the committee, which requests the preparation of standards for a considerable number of building materials. This program is expected to result in the building of more houses at greater speed to take care of the shortage of housing facilities which will face the British people following the war, and also, it is hoped, will result in better quality both in materials and construction. An important program for standardization of builders' mechanical plant and equipment has already been launched, to provide interchangeability of working parts likely to wear. This program is expected to simplify and speed up reconstruction work in Europe after the war.

Building Codes to Be Developed

The Codes of Practice Committee was set up by the Ministry of Works following consultations with the Ministry of Health and other government departments. The committee is made up of representatives of the principal professional societies, the BSI, and the Building Industries National Council. A "Code of Practice" will be a definition of the methods by which materials can best be used to perform certain functions, and will be a code of good practice, not a minimum standard. The committee has already outlined a comprehensive plan for Codes of Practice for Building to assure coordination of the proposed codes and to cover every operation in building work. When agreed upon by the committee, the codes will be published by the BSI as British Standard Building Codes. This committee has also undertaken to review building components which may be used in prefabrication and to make recommendations on standardization of dimensions and performance. Already, a number of components have been reviewed and passed to the British Standards Institution with the recommendation that new specifications be prepared or that existing specifications be revised.

"Office aid to the factory" is the descriptive phrase applied by *Standards Review* to a new program started by the BSI recently. This has to do with simplification and greater efficiency in the clerical work necessary to factory production and organization. A committee has been set up which has already prepared booklets on the following:

Principles of production control
Pay-roll methods
Office organization and practice
Drawing office organization
Production control in the small factory
Production control in the large factory
Costing
Stock control and storekeeping
Office mechanization

These booklets are expected to be of particular assistance to small factories, although they will be useful to organizations of any size. The principles involved are the same whether a factory employs ten workers or thousands, the committee believes. It has, therefore, defined principles while at the same time suggesting a choice of practices to suit varying needs. "The attempt to make available throughout the country a knowledge

of the best factory organizational practices, involving a simplification of the clerical work, is an essential move towards achieving maximum production," the *Standards Review* explains.

The Prime Minister's interest in Basic English has led to consideration of the possibility of translating British Standard Definitions and Specifications into this simplified form. The following shows how two of the definitions in the British Standard Glossary of Electrical Terms might be translated:

King's English	*King's Basic English*
CEILING ROSE: An enclosure of china, porcelain or other insulating materials, fitted with terminals and intended for connecting a flexible cord carrying a pendant to the wiring of an electrical installation.	CEILING ROSE: A cup-like cover of porcelain or other insulator material, having connection screws and used for making connection between the "flex" or covered wire of a light hanging from the top of the room and the wiring of an electric circuit.
POINT: A termination of the wiring intended for attachment to a fitting for one or more lamps or other current using appliances.	POINT: End of the wiring for fixing to one or more lights or other forms of current using apparatus.

In an article on "Packaging Standardization," *Standards Review* reports on the work done by the British Standards Institution on sizes and types of packages (1) for pre-packed commodities for the home trade; and (2) on a code of packaging for the Anglo-American Packaging Committee of the Ministry of Production. This latter has been issued by the BSI as BS1133. The BSI has now been asked by the Anglo-American Packaging Committee to prepare a supplement to this British Standard Packaging Code on packing for tropical climates.

A review of the British Standard Code for Temperature Measurement (BS 1041:1943) explains that the code is intended to assist operators in selecting the most appropriate method of temperature measurement for any given case, to indicate the source of error and the limitations inherent in each method, and to formulate the precautions which should be observed.

The post-war outlook in electrical standardization is the subject of an article which points out that development work has been going on which will result in many new standards and revisions of existing standards after the war. Emphasis is placed on the need for standard outlets for all types of portable electrical appliances. Although they have been standardized for many years in the United States, no standardization of electrical outlets has been accomplished in Great Britain. The present suggestion, however, is confined to a standard size outlet for "the smaller types of post-war houses." Other international standardization is needed, the article points out, since different standards have already grown up in connection with television in America, Great Britain, and France. International standards will have to be set up after the war before programs can be exchanged between countries. In particular, there is urgent need for early agreement on terms and definitions if future confusion is to be avoided.

A new field for standardization has been entered by the BSI within the past couple of years. This is the development of consumer standards. As a result of the work already done by the Institution on war standards for consumer goods for the Ministry of Works, the Executive Committee of the BSI has authorized the organization of a Consumer Goods Standards Committee. "This phase of standardization is of great importance;" declares *Standards Review*, "there will be a great amount of buying to be done, houses to be furnished and stocked and people have savings put by for that purpose. They need to be taught to buy wisely, and wise buying is buying goods which are up to a recognized standard of quality."

The BSI already has committees working on a scientific system of garment sizes for post-war use.

Copies of the *Standards Review* will be kept on file in the Library of the American Standards Association.

Reck to Be Standards Consultant to China

Harry D. Robinson Appointed His Successor as Director of Standards Division of OPA

There are now in China about 50 American experts in agriculture, finance, engineering, transportation, and various sciences who, under the auspices of the State Department, are working with the Chinese Government and people in the industrialization of China.

Dickson Reck, formerly Director of the Standards Division of OPA, has just been appointed by the State Department as a specialist on standardization. After suitable preparatory work in this country, Mr. Reck will go to Chungking to collaborate in the development of standardization programs.

No country—not even Russia—has ever had so great an opportunity as China will have in the selection and use of standards in its industrial and economic development. It will have the experience of all the industrial countries of the world to draw upon.

It is understood that Mr. Reck will work closely with the Ministry of Economics, the National Resources Commission of the Chinese Government, and the Chinese Institute of Engineers.

Harry D. Robinson, former General Manager of the Rockland Division of the Plymouth Rubber Company, has succeeded Mr. Reck as the Standards Director of OPA. For the last 15 months, Mr. Robinson has been the head of the rubber, chemical, and fuel section of the Division.

Batchelder, Argentina, Visits U. S.

C. C. Batchelder, president of the General Electric Company in Buenos Aires, has been in the United States since June. Mr. Batchelder, who is a member and former chairman of the Standards Committee of the American Chamber of Commerce in Buenos Aires, is one of the men who has been effective in bringing about intimate relations between the American Standards Association and IRAM (the Argentine standards association). As a member of the Standards Committee of the American Chamber of Commerce in Buenos Aires, Mr. Batchelder has been closely associated with C. T. Brady, Jr., Field Representative of the ASA in Argentina, and has given valuable assistance to his work.

While in New York, Mr. Batchelder has been consulted by the Inter-American Department of ASA in connection with the various aspects of the standardization movement throughout the field. He attended the meeting of the Inter-American Advisory Committee.

Standards Issued by Associations and Government

(For new American Standards see page 146)

For the information of ASA Members, the American Standards Association gives here a list of standards received by the ASA Library during the last month. The list given below includes only those standards which the ASA believes are of greatest interest to Members in connection with their war production problems.

These standards may be consulted by ASA Members at the ASA Library, or copies may be obtained from the organization issuing the standard. The address of the organization is given for your convenience.

Associations and Technical Societies

American Society for Testing Materials (260 South Broad Street, Philadelphia 2, Pa.)

The letter T following a designation indicates the standard is Tentative.

Tentative Method of Spectrochemical Analysis of:
- Lead Alloys for Minor Constituents and Impurities E49-43T
- Tin Alloys for Minor Constituents and Impurities E51-43T
- Zinc-Alloy Die Castings for Minor Constituents and Impurities E27-43T

Zinc for Lead, Iron, and Cadmium E26-43T

American Wood-Preservers' Association (1427 Eye Street, N. W., Washington 5, D. C.)

Recommended Practice

Use of Pressure-Treated Lumber in Protecting Buildings Against Decay and Termites 50d

Standard Methods

Analysis for Salt Preservatives 1d
Determining Penetration of Salt Preservatives 20c

Standard Specifications

Chromated Zinc Chloride 60b
Preservative Treatment of:
- Jack Pine Poles by Pressure Processes 56c
- Lodgepole Pine Poles by Pressure Processes 56c
- Red Pine Poles by Pressure Processes 55c
- Southern Pine Poles by Pressure Processes 39c
- Southern Pine Poles by Pressure Processes 36e

Tanalith 61b
Zinc Meta Arsenite 62b

Tentative Standards

Instructions for the Inspection of Preservative Treatment of Wood 33c
Preservative Treatment of Oak Ties and Lumber by Pressure Processes 52a

Association of American Railroads (30 Vesey Street, New York 7, N. Y.)

Emergency Alternate Provisions

Specification for Leather Body Belts and Safety Straps 1-A-18 EA-1
Specification for No. 14 and No. 16 Awg Copper Outside Distributing Wire 1-A-39 EA-2
Specification for No. 16 Awg Copper Covered Steel Distributing Wire—Single and Twisted Pair 1-A-81 EA-2
Specification for No. 16 Awg Rubber Insulated, Lead Sheathed, Steel Armored Cable (Parkway) 1-A-90 EA-2
Specification for No. 19 Awg Pothead Cable ARA—O36P-A 1-A-49 EA-2
Specification for Rubber Insulated, Jute Covered, Tape Armored Cable 1-A-75 EA-1
Specification for Rubber Insulated, Quadded, Lead Covered Cable 1-A-66 EA-2
Specification for Single Conductor Waxed Braid Rubber Insulating Inside Wire 2-G-16 EA-2
Specification for Twisted Pair Waxed Braid Rubber Insulating Inside Wire 2-G-15 EA-2

Institute of Makers of Explosives (103 Park Avenue, New York, N. Y.)

Safety in the Handling and Use of Explosives with January 21, 1944 issue of "Don'ts" inserted
Standard Storage Magazines Pamphlet No. 1 (revised)

U. S. Government

(Wherever a price is indicated, the publication may be secured from the Superintendent of Documents, Government Printing Office, Washington, D. C. In other cases, copies may be obtained from the government agency concerned.)

National Bureau of Standards (Washington, D. C.)

Letter Circulars

List of Commercial Standards Revised to July 1, 1944 LC 755

Federal Specifications Executive Committee (U. S. Treasury Department, Washington, D. C.)

Federal Specifications

(Copies available from Superintendent of Documents, Government Printing Office, Washington, D. C.)

Aluminum-alloy (AL-61) (aluminum, magnesium-silicon-copper-chromium); bars, rods, shapes, and wire QQ-A-325 July 1, 1944 5¢

Federal Specifications—(Continued)

Aprons; surgeons' (synthetic rubber and resin coated) (superseding ZZ-A-611, and E-ZZ-A-611, 3/11/43) ZZ-A-611a July 15, 1944 5¢

Bronze; castings (superseding QQ-B-691a) QQ-B-691b July 15, 1944 5¢

Coolers, drinking-water; electric (superseding OO-C-566 and E-OO-C-566, 6/25/42) OO-C-566a July 15, 1944 5¢

Cans; waste (oily) (Amendment 1) RR-C-114 June 15, 1944 5¢

Drills; breast (Amendment 1) (superseding E-GGG-D-651, 4/17/43) GGG-D-651 July 15, 1944 5¢

Gaskets; rubber (natural or synthetic) molded, sheet, and strip (superseding HH-G-156, and E-HH-G-156, 8/7/41) HH-G-156a July 15, 1944 5¢

Metals; general specification for inspection of (Amendment 1) QQ-M-151a June 15, 1944 5¢

Mops:
- cotton (Amendment 1) (superseding E-T-M-561a, 9/9/42) T-M-561a July 15, 1944 5¢
- outfits (Amendment 2) (superseding E-RR-M-571, 9/5/42) RR-M-571 July 15, 1944 5¢

Packing:
- asbestos, sheet, compressed (superseding HH-P-46, and E-HH-P-46, 2/20/43) HH-P-46a July 15, 1944 5¢
- diaphragm (superseding HH-P-61b) HH-P-61c July 15, 1944 5¢

Paper; chart, 100 percent, lithograph-finish, white (Amendment 1) UU-P-171a August 1, 1944 5¢

Paste, office and photomounting; paste-brushes and spreaders (superseding N-P-101b and E-N-P-101b, 2/27/42) N-P-101c June 15, 1944 5¢

Plastic; light-diffusing (for) lighting fixtures L-P-384 July 15, 1944 5¢

Receptacles (convenience outlets) (Amendment 4) attachment plugs, current-taps, and connectors W-R-151 June 15, 1944 5¢

Sponges; cellulose-type (Amendment 2) L-S-626 June 15, 1944 5¢

Sutures, surgical; silk and nylon GG-S-816 July 15, 1944 5¢

Titanium-dioxide; dry (paint-pigment) TT-T-425 July 15, 1944 5¢

Toluidine-red-toner; dry (paint pigment) TT-T-562 June 15, 1944 5¢

Wire; copper, soft or annealed (Amendment 1) QQ-W-341 July 15, 1944 5¢

U. S. Department of Labor (Bureau of Labor Statistics) (Washington, D. C.)

Accident-Record Manual For Industrial Plants Bulletin No. 772 10¢

Injuries and Accident Causes in the Longshore Industry, 1942 Bulletin No. 764 10¢

War Food Administration

Grades of Frozen Strawberries, Tentative U. S. Standards for July 1, 1944

Canadian Association Considers Revision of Canadian Electrical Code

The Canadian Standards Association is now giving consideration to a general revision of the Canadian Electrical Code, Part I, preparatory to the publishing of a fifth edition. Subcommittees have been organized to review the various sections of the code and are now actively engaged in the work of revision.

Any and all proposals for revision will be welcome and should be submitted to the CSA without delay in order that fullest consideration may be given well in advance of the closing date for receipt of proposals. All such proposals should be, if possible, in the form of the actual text desired for incorporation as new or revised rules in the Fifth Edition of the Code. They should be sent to the Canadian Standards Association, Room 3010, National Research Building, Ottawa, Canada.

The closing date for receipt of proposals for revision is October 1, 1944. Requests for revision, received after that date, may be held for consideration in the next general revision.

Venezuela Shows Interest In American Safety Standards

A representative of the Venezuelan Institute of Social Security (Instituto Central de Seguros Sociales), Dr. M. Lares Gabaldon, recently visited the Inter-American and the Safety departments of the American Standards Association. Dr. Lares Gabaldon was interested in contacting manufacturers of safety equipment and in learning about its use in the United States. He was referred by the ASA to the Industrial Safety Equipment Association.

A complete set of American Safety Standards has now been presented by ASA to the Venezuelan Institute.

New Foreign Standards Now in ASA Library

THE following new and revised standards, just received by the American Standards Association from other countries, may be borrowed by ASA Members, or ordered through the ASA Library. The standards are published in the language of the country from which they were received.

Great Britain

Standard Form of Time and Wage Sheet BS1151:1944

Vulcanised Rubber for Government Department Requirements BS1154:1944

Plain Rubber Tubing for Government Department Requirements BS1155:1944

Tapping Drill Sizes for Screw Threads BS1157:1944

Copper Alloy Ingots and Castings BS1121-8 and 1158.1:1944

Payroll Methods BS1100 Pt 4

Aluminium Alloy Sections BS1161:1944

Post-War Building Studies

Gas Installations No. 6

Plastics No. 3

Reinforced Concrete Structures No. 8

Standard Construction for Schools No. 2

Steel Structures No. 7

Progress Report of Standards Committee

The Use of Standards in Building

Draft Standards

Drawn Lead Traps (Revision of B.S. 504) CG (NF) 6331

Hollow Clay Blocks CG (CLB) 6334

New Zealand

Simplified Practice

Manufacture of Household Furniture NZSS E104

Switzerland

Capacite D'Absorption D'Eau (Susceptibilite a l'eau) SNV 81123 S.1-3P. Fr. .90

Company Member Application for Free Standards

(Must be returned by November 1, 1944)

Company Members of the American Standards Association are entitled to one free copy of each newly approved American Standard for the first $50 of annual membership, and an additional copy for each $100 beyond this.

NAME ..... STREET .....

Person eligible to return list (We can give you his name, if necessary)

COMPANY ..... CITY AND STATE .....

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- Give your list to your company representative, who will return it to us. The duplicate below is for your files.
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No. of Copies	ASA Number	Sponsor's Number	Title of Standard	Price
.....	B1.6-1944		Screw Threads of Truncated Whitworth Form (American Truncated Whitworth Threads) (American War Standard)	.50
.....	B18.3a-1944		Socket Set Screws and Socket Head Cap Screws (ASA B18.3-1936), Supment to	.10
.....	C16.10-1944		Volume Controls (Home Receiver Replacement Type) (American War Standard)	.20

(*Continued on next page*)

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.....	B18.3a-1944		Socket Set Screws and Socket Head Cap Screws (ASA B18.3-1936), Supment to	.10
.....	C16.10-1944		Volume Controls (Home Receiver Replacement Type) (American War Standard)	.20

(*Continued on next page*)

No. of Copies	ASA Number	Sponsor's Number	Title of Standard	Price
.....	C59.2-1944	ASTM D117-43	Testing Electrical Insulating Oils, Methods of	.25
.....	C59.11-1944	ASTM D256-43T	Impact Resistance of Plastics and Electrical Insulating Materials, Methods of Test for	.25
.....	C62.1-1944	AIEE No. 28 May-1944	Lightning Arresters for Alternating-Current Power Circuits	.30
.....	C75.16-1944		Fixed Paper-Dielectric Capacitors (Hermetically Sealed in Metallic Cases) (American War Standard)	.60
.....	C-75.17-1944		Method of Noise-Testing Fixed Composition Resistors (American War Standard)	.20
.....	Z37.16-1944		Allowable Concentration of Formaldehyde	.20
.....	Z38.1.25-1944		Dimensions for Industrial X-Ray Sheet Film (Inch Sizes) (other than Cinematography)	.10
.....	Z38.1.26-1944		Dimensions for Graphic Arts Sheet Film (Inch Sizes) (other than Cinematography)	.10
.....	Z38.1.27-1944		Dimensions for Medical X-Ray Sheet Film (Inch and Centimeter Sizes) (other than Cinematography)	.10
.....	Z38.1.28-1944		Dimensions for Professional Portrait and Commercial Sheet Film (Inch Sizes) (other than Cinematography)	.10
.....	Z38.1.29-1944		Dimensions for Professional Portrait and Commercial Sheet Film (Centimeter Sizes) (other than Cinematography)	.10
.....	Z38.1.30-1944		Dimensions for Photographic Dry Plates (Inch Sizes) (other than Cinematography)	.10
.....	Z38.1.31-1944		Dimensions for Photographic Dry Plates (Centimeter Sizes) (other than Cinematography)	.10
.....	Z52.25-1944		Reduction Printing from 35-Mm to 16-Mm Motion Picture Film—Negative Aperture Dimensions and Image Size for 16-Mm Duplicate Negatives Made from 35-Mm Positive Prints (American War Standard)	.10
.....	Z52.26-1944		Contact Printing of 16-Mm Motion Picture Film—Printer Aperture Dimensions for Contact Printing 16-Mm Positive Prints from 16-Mm Negatives (American War Standard)	.10
.....	Z52.27-1944		Contact Printing of 16-Mm Motion Picture Film—Printer Aperture Dimensions for Reversal and Color Reversal Duplicate Prints (American War Standard)	.10

No. of Copies	ASA Number	Sponsor's Number	Title of Standard	Price
.....	C59.2-1944	ASTM D117-43	Testing Electrical Insulating Oils, Methods of	.25
.....	C59.11-1944	ASTM D256-43T	Impact Resistance of Plastics and Electrical Insulating Materials, Methods of Test for	.25
.....	C62.1-1944	AIEE No. 28 May-1944	Lightning Arresters for Alternating-Current Power Circuits	.30
.....	C75.16-1944		Fixed Paper-Dielectric Capacitors (Hermetically Sealed in Metallic Cases) (American War Standard)	.60
.....	C75.17-1944		Method of Noise-Testing Fixed Composition Resistors (American War Standard)	.20
.....	Z37.16-1944		Allowable Concentration of Formaldehyde	.20
.....	Z38.125-1944		Dimensions for Industrial X-Ray Sheet Film (Inch Sizes) (other than Cinematography)	.10
.....	Z38.1.26-1944		Dimensions for Graphic Arts Sheet Film (Inch Sizes) (other than Cinematography)	.10
.....	Z38.1.27-1944		Dimensions for Medical X-Ray Sheet Film (Inch and Centimeter Sizes) (other than Cinematography)	.10
.....	Z38.1.28-1944		Dimensions for Professional Portrait and Commercial Sheet Film (Inch Sizes) (other than Cinematography)	.10
.....	Z38.1.29-1944		Dimensions for Professional Portrait and Commercial Sheet Film (Centimeter Sizes) (other than Cinematography)	.10
.....	Z38.1.30-1944		Dimensions for Photographic Dry Plates (Inch Sizes) (other than Cinematography)	.10
.....	Z38.1.31-1944		Dimensions for Photographic Dry Plates (Centimeter Sizes) (other than Cinematography)	.10
.....	Z52.25-1944		Reduction Printing from 35-Mm to 16-Mm Motion Picture Film—Negative Aperture Dimensions and Image Size for 16-Mm Duplicate Negatives Made from 35-Mm Positive Prints (American War Standard)	.10
.....	Z52.26-1944		Contact Printing of 16-Mm Motion Picture Film—Printer Aperture Dimensions for Contact Printing 16-Mm Positive Prints from 16-Mm Negatives (American War Standard)	.10
.....	Z52.27-1944		Contact Printing of 16-Mm Motion Picture Film—Printer Aperture Dimensions for Reversal and Color Reversal Duplicate Prints (American War Standard)	.10

ASA Standards Activities

American Standards

American Standards Available Since Our June Issue

See "Company Member Application for Free Standards" (page 143)

Standards Being Considered by ASA for Approval

Photography and Cinematography Z38
Sponsor: Optical Society of America
Designation of Emulsion Side of Photographic Sheet Films Z38.1.42
Designation for Thickness of Photographic Paper Z38.1.44
Dimensions for Lantern Slides Z38.7.13
Dimensions for Leaders, Trailers, and Roll Film for Aerial Photography Z38.1.41
Dimensions of Front Mounts for Camera Lenses Z38.4.10

Photography and Cinematography—(Continued)
Dimensions of Inch Size Photographic Papers Z38.1.43
Practice for Temperature of Processing Solutions Z38.8.1
Specifications for Contact Printers Z38.7.10
Specifications for Lantern Slide Projectors Z38.7.14
Specifications for Masks (Separate) Z38.7.12
Specifications for Projectors for Opaque Materials for Use in Small Auditoriums Z38.7.4
Specifications for Printing Frames Z38.7.11
Specifications for Slide-Film Projectors Z38.7.15

Standards Submitted to ASA Since Our June Issue

Cast-Iron Pipe Flanges and Flanged Fittings, Class 250 (Revision of B16b-1928)

American War Standards

List of American War Standards

Accuracy of Engine Lathes B5.16-1941 25¢
Allowable Concentrations of Toxic Dusts and Gases Z37
Cadmium Z37.5-1941 20¢
Manganese Z37.6-1942 20¢
Metallic Arsenic and Arsenic Trioxide Z37.9-1943 20¢
Styrene Monomer Z37.15-1944 20¢
Xylene Z37.10-1943 20¢
Clothing—*See* Protective Occupational (Safety) Clothing; Women's Industrial Clothing.
Code for Electricity Meters (Revision of Paragraph 827) C12WS-1942 10¢
Color, Specification and Description of Z44-1942 25¢
Domestic Gas Ranges, Approval Requirements Z21.1ES-1942 $1.00
Dry Electrolytic Capacitors (Home Receiver Replacement Type) C16.7-1943 20¢
Electrical Graphical Symbols, Coordination of Z32.11-1944 10¢
Electrical Measuring Instruments C39
Electrical Indicating Instruments (2½- and 3½-Inch, Round, Flush-Mounting, Panel-Type) C39.2-1943 50¢
External Ammeter Shunts for Panel-Type Instruments C39.5-1943 25¢
Shock-Testing Mechanism for Electrical Indicating Instruments (2½- and 3½-Inch, Round, Flush-Mounting, Panel-Type) C39.3-1943 25¢
Dimensions for External Radio-Frequency Thermocouple Converters (120 Milliamperes to 10 Amperes, Inclusive) C39.4-1943 10¢
Gas Water Heaters, Approval Requirements Z21.10WS-1942 $1.00
Machine Tool Electrical Standards C74-1942 40¢
Military Radio Equipment and Parts C75
Ceramic Radio Insulating Materials, Class L C75.1-1943 20¢
Ceramic Radio Dielectric Materials, Class H C75.4-1943 20¢
Crystal Unit CR-1()AR C75.11-1944 25¢
Dynamotors C75.13-1944 35¢
External Meter Resistors (Ferrule Terminal Styles) C75.5-1943 25¢
Fixed Ceramic-Dielectric Capacitors C75.12-1944 35¢
Fixed Composition Resistors C75.7-1943 60¢
Fixed Mica-Dielectric Capacitors C75.3-1943 50¢
Fixed Paper-Dielectric Capacitors (Hermetically Sealed in Metallic Cases) C75.16-1944 60¢
Glass Radio Insulators C75.8-1943 50¢

List of American War Standards—(Continued)
Military Radio Equipment and Parts—(Continued)
Glass-Bonded Mica Radio Insulators C75.6-1943 25¢
Method of Noise Testing Fixed Composition Resistors C75.17-1944 20¢
Porcelain Radio Insulators C75.14-1944 50¢
Power-Type Wire-Wound Rheostats C75.9-1944 50¢
Steatite Radio Insulators C75.2-1943 50¢
Toggle Switches C75.15-1944 50¢
Variable Wire-Wound Resistors (Low Operating Temperature) C75.10-1944 40¢
Photography and Cinematography Z52
Contact Printing of 16-mm Motion Picture Film—Printer Aperture Dimensions for Contact Printing 16-mm Positive from 16-mm Negative Z52.26-1944 10¢
Contact Printing of 16-mm Motion Picture Film—Printer Aperture Dimensions for Reversal and Color Reversal Duplicate Prints Z52.27-1944 10¢
Method of Determining Uniformity of Scanning Beam Illumination of 16-mm Sound Motion Picture Projectors Z52.7-1944 10¢
Positive and Negative Splices for Processed 16-mm Sound Motion Picture Film Z52.20-1944 10¢
Photography and Cinematography Z52
Specification for Class I Service Model 16-mm Sound Motion Picture Projection Equipment Z52.1-1944
Method of Determining Freedom from Travel Ghost in 16-mm Sound Motion Picture Projectors Z52.4-1944 10¢
Method of Determining Resolving Power of 16-mm Motion Picture Projector Lenses Z52.5-1944 10¢
Method of Determining Picture Unsteadiness of 16-mm Sound Motion Picture Projectors Z52.6-1944 10¢
Reduction Printing from 35-mm to 16-mm Motion Picture Film—Negative Aperture Dimensions and Image Size for 16-mm Duplicate Negatives Made from 35-mm Positive Prints Z52.25-1944 10¢
Reduction Printing from 35-mm to 16-mm Motion Picture Film—16-mm Positive Aperture Dimensions and Image Size for Positive Prints Made from 35-mm Negatives Z52.24-1944 10¢
Specification for Multi-Frequency Test Film Used for Field Testing 16-mm Sound Motion Picture Projection Equipment Z52.8-1944 10¢

List of American War Standards—(Continued)

Photography and Cinematography—(Continued)

Specification for 3,000-Cycle Flutter Test Film for 16-mm Sound Motion Picture Projection Equipment Z52.9-1944 10¢
Specification for Buzz-Track Test Film for 16-mm Sound Motion Picture Projectors Z52.10-1944 10¢
Specification for Sound-Focusing Test Film for 16-mm Sound Motion Picture Projectors Z52.11-1944 10¢
Sound Records and Scanning Area for 16-mm Sound Motion Picture Prints Z52.16-1944 10¢
Specification for 40-Cycle Signal Level Test Film for 16-mm Sound Motion Picture Projection Equipment Z52.17-1944 10¢
Photographic Exposure Computer Z38.2.2-1942 $1.00
Pressure Ratings for Cast-Iron Pipe Flanges and Flanged Fittings, Class 125 B16.1-1943 10¢
Pressure-Temperature Ratings for Steel Pipe Flanges, Flanged Fittings, and Valves (Revision of Tables 6 to 11, inclusive. American Standard B16e-1939) B16e-1943 25¢
Protective Lighting for Industrial Properties A85-1942 50¢
Protective Occupational Footwear Z41

Men's Safety Shoes
Men's Safety-Toe Shoes Z41.1-1944
Men's Conductive Shoes Z41.3-1944
Men's Explosives-Operations (Non-sparking) Shoes Z41.4-1944
Men's Electrical-Hazards Shoes Z41.5-1944
} In one volume 40¢

Women's Safety Shoes
Women's Safety-Toe (Oxford) Shoes Z41.2-1944
Women's Safety-Toe (High) Shoes Z41.7-1944
Women's Explosives-Operations (Non-sparking) Shoes Z41.8-1944
Women's Conductive Shoes Z41.9-1944
} In one volume 40¢

Protective Occupational (Safety) Clothing L18
Leather Aprons L18.1-1944
Leather Cape Sleeves and Bibs L18.2-1944
Leather Leggings (Knee Length) L18.3-1944
} In one volume 30¢
Leather Coats L18.4-1944
Leather Overalls L18.5-1944
Leather Sleeves L18.6-1944
} In one volume 30¢

Quality Control Z1
Guide for Quality Control Z1.1-1941
Control Chart Method of Analyzing Data Z1.2-1941
} In one volume 75¢
Control Chart Method of Controlling Quality During Production Z1.3-1942 75¢
Replacement Parts for Civilian Radio C16
Dry Electrolytic Capacitors (Home Receiver Replacement Type) C16.7-1943 20¢

Replacement Parts for Civilian Radio—(Continued)
Fixed Paper-Dielectric Capacitors (Home Receiver Replacement Type) C16.6-1943 20¢
Home Radio Replacement Parts Simplified List C16.8-1943 20¢
Power and Audio Transformers and Reactors (Home Receiver Replacement Type) C16.9-1943 25¢
Volume Controls (Home Receiver Replacement Type) C16.10-1944 20¢
Safety in Electric and Gas Cutting and Welding Operations Z49.1-1944 40¢
Screw Threads B1
Screw Threads of Truncated Whitworth Form B1.6-1944 50¢
Straight Screw Threads for High-Temperature Bolting B1.4-1942 25¢
Women's Industrial Clothing L17
Bungalow Aprons and Wrap-around and Coat Style Dresses L17.1-1944 25¢
Jackets, Shirts, and Aprons L17.3-1944 25¢
Regular and Princess Model Coat Style Dresses L17.4-1944 20¢
Slacks, Dungarees, Overalls, and Coveralls L17.2-1944 25¢

War Standards Under Way

Color Code for Lubrication of Machinery Z47
Cylindrical Fits B4
Linemen's Rubber Protective Equipment J6
Machine Tool Electrical Standards, Revision of C74-1942
Photography and Cinematography Z52
Abuse-Testing Mechanism for Photographic Exposure Meters Z52.30/221
Acceptance of Photographic Exposure Meters (Reflected-Light, Photoelectric Type) Z52.21/266
Calibration of Photographic Exposure Meters (Reflected-Light, Photoelectric Type) Z52.22/267
Service Model Photographic Exposure Meters (Reflected-Light, Photoelectric Type) Z52.12/268
Protective Occupational (Safety) Clothing L18
Welders' Leather Gauntlet Gloves L18.7
Protective Leather Gloves, Steel Stapled L18.8
Asbestos Gloves L18.9
Asbestos Gloves, Leather Reinforced L18.10
Asbestos Mittens L18.11
Asbestos Mittens, Leather Reinforced L18.12
Women's Safety and Powder Caps L18.13
Resistance Welding Equipment C52
Electrodes C52.3
Specifications for Design and Construction of Resistance Welding Equipment C52.4
Screw Threads B1
Acme Screw Threads B1.5

News of ASA Projects

Acme Threads (B1.5)—

On July 7, the draft of a proposed American War Standard for Acme Threads was sent out to a canvass of key individuals for approval or comment. This proposal covers Acme threads for general purposes, as well as those for special purposes, such as Acme threads used on aircraft.

Color Code for Lubrication of Machinery (Z47)—

In a meeting held on July 11, the ASA War Committee on this subject reviewed the comments on the proposed American War Standard received through a canvass of key individuals. To meet a number of objections made by some of those canvassed, the committee adopted several amendments. A revised draft will now be prepared for the approval of the committee.

Cylindrical Fits (B4)—

In a meeting held on June 6, the ASA War Committee decided that Part I of the proposed American War Standard for Cylindrical Fits should be sent out shortly to a canvass of key individuals for approval or comment. Part I deals with Preferred Basic Diameters; Tolerances and Allowances; and Symbols for Holes, Shafts, and Fits. The committee further decided that work on a draft of Part 2, dealing with gaging specifications, should be started at once.

Linemen's Protective Equipment (J6)—

The first meeting of the War Committee was held on July 6. It was decided that the committee's work should include specifications for rubber gloves, leather protective gloves, rubber sleeves, hoods, and blankets. Those present gave careful consideration to the standard Specifications for Electrical Gloves (ASTM D 120-40; ASA C59.12-1942). The committee, after complete review of the situation and after taking into consideration the shortage of rubber and present manufacturing facilities, agreed that there should be no relaxing of the performance requirements for linemen's rubber gloves during the war period. They should continue to be manufactured according to this specification. Stewart J. Owen, Jr., was appointed chairman of the subcommittee on leather protective gloves; Roy Godwin, on sleeves; T. R. Claffy, on hoods; and H. S. Vassar, on rubber blankets. The personnel of the J6 committee is as follows: Gordon Thompson, Chairman, Electrical Testing Laboratories; H. F. Brown, New York, New Haven and Hartford Railroad; C. R. Chace, Travelers Insurance Company; T. R. Claffy, W. H. Salisbury Company; J. B. Davies, Mine Safety Appliances Company; D. A. Fleming, Rural Electrification Administration; Roy Godwin, Philadelphia Electric Company; S. S. Hall, Surety Rubber Company; Karl Herbruck, Wilson Rubber Company; S. J. Owen, Jr., National Bureau of Standards; H. S. Vassar, Public Service Gas and Electric Company of New Jersey; S. E. Whiting, Liberty Mutual Insurance Company; C. D. Hocker, Bell Telephone Laboratories; Liaison: W. H. Beidatsch, Office of Civilian Requirements, WPB; Robert C. Dabney, Office of Rubber Director, WPB; H. C. Mesch, Safety Equipment Section, WPB; H. Richardson, Conservation Division, WPB; and H. D. Robinson, Office of Price Administration.

Cloyd M. Chapman

Cloyd M. Chapman, one-time associate of Thomas A. Edison, and who has long been associated with the American Standards Association, died at his home on July 2.

Following service as an engineer officer of the United States Navy during the Spanish-American War, Mr. Chapman became the assistant of Thomas A. Edison in his private laboratory in 1899. In 1905 Mr. Chapman joined Westinghouse, Church, Kerr and Company. During World War I, he helped build the Rock Island Arsenal in Illinois. Since then, he had been associated with Powers X-ray Company.

Mr. Chapman had always shown a keen interest in standardization work, and had been particularly active in the work of the American Society for Testing Materials, in addition to his work in the ASA. He was president of ASTM in 1932.

His affiliation with the ASA extends back to its early years when the association was the American Engineering Standards Committee. A member of Standards Council for 10 years dating from 1924, he was chairman in 1931 and for two years following. In 1928 he was vice-chairman of the AESC and, when the reorganization occurred later that year, he became vice-president of the Association, which office he held through 1932.

Mr. Chapman was a member of the ASA Board of Directors from 1931 to 1937. Some of the committees on which he has been active include: the executive committee of the AESC; the Board committee on international cooperation; on policy; procedure; finance; and administrative problems. Until the time of his death, Mr. Chapman represented the American Society of Mechanical Engineers on ASA Committee B17 on Standardization of Shafting.

War Standards for Leather Garments To Protect Workers, Conserve Materials

TO help conserve vital war materials, and to provide protection for thousands of war workers, some doing industrial work for the first time and, therefore, unfamiliar with possible accident hazards, three new specifications for protective occupational (safety) clothing have been approved by the American Standards Association. These cover requirements for leather coats, overalls, and sleeves. Such requirements are necessary not only to cut the accident rate in defense plants, but also to increase productive capacity in the manufacture of safety garments, by limiting the number of types of garments made.

The work was requested by the War Production Board and the Office of Price Administration in recognition of the fact that adequate protective work clothing has been difficult to obtain, not only because of the increasing material shortages, but because at the same time, there has been an increasing number of workers needing safety clothing. It is necessary, therefore, to utilize what materials there are available and so prevent their being wasted in unsatisfactory safety clothing.

In order to write these specifications, the formulating committee had to study the strength, durability, minimum thicknesses, and dimensions of all garments, all of which must conform to specific requirements.

The leather coats, overalls, and sleeves are intended to afford protection from sparks, molten metal, infrared and ultra-violet rays, and limited impact forces. Specific directions are given for men's and women's garments. The specifications cover pattern and design, sizes and dimensions (also given in tables), construction details, materials and workmanship, methods of test, and identification for each garment.

The coats, extending to the hips, are made to protect the upper half of the body. The overalls provide protection to the lower half of the body and partial protection to the chest and back by means of bibs. The leather welding sleeves are intended to protect the arms and shoulders of the wearer. And if all three garments are used, they are designed to overlap so that they do not leave any parts of the body unprotected.

These garments, together with previously approved specifications for leather aprons, cape sleeves, bibs, and knee-length leggings, make up the first group of national standards to be completed in this field, and fill a long realized need in accident prevention work.

All three of these new specifications are printed in one booklet, American War Standard Specifications for Protective Occupational (Safety) Clothing, Leather Coats, Overalls, and Sleeves (L18.4-1944; L18.5-1944; L18.6-1944). They may be obtained for 30 cents per copy from the American Standards Association.

The standards approved earlier, American War Standard Specifications for Protective Occupational (Safety) Clothing, Leather Aprons, Cape Sleeves and Bibs, and Knee-Length Leggings (L18.1-1944; L18.2-1944; L18.3-1944) are also published in one volume and may be obtained for 30 cents per copy.

A New American War Standard

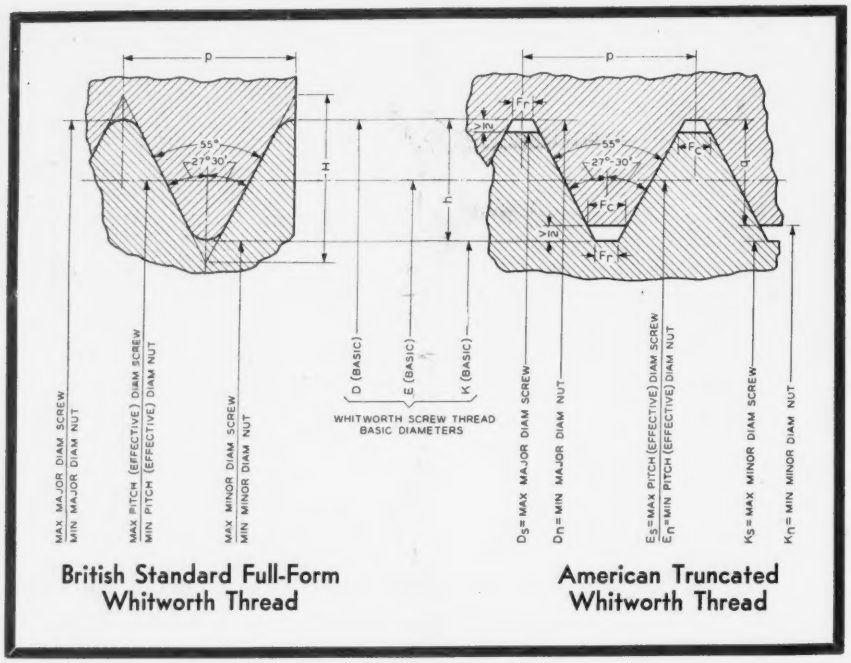
Screw Threads of Truncated Whitworth Form

(American Truncated Whitworth Threads)

B1.6-1944

50c

(27 pages, with diagrams and tables)



British Standard Full-Form Whitworth Thread

American Truncated Whitworth Thread

This new standard gives complete specifications, including gaging instructions, for American Truncated Whitworth Threads which:

Are produced with tools having flat crests and roots

Are checked with threaded plug and ring gages having flat crests

Are interchangeable with British Standard Whitworth Threads

Any manufacturer who is asked to supply component parts having Whitworth threads, should find out if he can keep down production cost and speed up delivery by using the American War Standard B1.6-1944. (See article, page 129.)

Order your copy from:

American Standards Association

29 West 39th St. New York 18